

Attorney Docket No. 1033033-000028

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) Group Art Unit: 2856

) Examiner: HELEN C KWOK

) Confirmation No.: 5265

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As disclosed in the Gunkel patent, at the paragraph beginning at line 66 of column 6, boundary zones of a weld are defined as the zones adjacent the I.D. and O.D. boundaries between the weld and adjacent plate. The heart of the weld is labeled as H. In the Gunkel patent, a specific inspection of the I.D. and O.D. boundary zones  $Z_{ID}$  and  $Z_{OD}$  is provided by shear wave inspection simultaneously with inspection of the heart of the weld and plate adjacent the weld by longitudinal wave inspection. The Gunkel patent uses a combination of types of ultrasonic inspection to provide inspection. The Gunkel patent clearly discloses that the zones  $Z_{ID}$  and  $Z_{OD}$  are evaluated by shear inspection, wherein the heart H is evaluated by longitudinal wave inspection. The Gunkel patent does not perform inspections of a welded joint as it is forming and instead discloses the inspection of already formed welds.

Claim 3 recites

$$\frac{D_i(t)}{D_r(t)} = \frac{(EB)_i(t) \cdot (BB)_i(t) \cdot (BI)_i(t) \cdot (BE)_i(t)}{(EB)_r(t) \cdot (BB)_r(t) \cdot (BI)_r(t) \cdot (BE)_r(t)} \approx \frac{(EB)_i^2(t) \cdot (BB)_i(t)}{(EB)_r^2(t) \cdot (BB)_r(t)} \approx \frac{(BB)_i(t)}{(BB)_r(t)}$$

with  $(EB)_{i \text{ or } r}(t) \equiv$  sound transmittance of longitudinal waves or transverse waves at the sound coupling - in area on the first part of a joint

$(BB)_{i \text{ or } r}(t) \equiv$  sound transmittance of longitudinal waves or transverse waves at the contact between the parts of a joint

$(BI)_{i \text{ or } r}(t) \equiv$  sound transmittance of longitudinal waves or transverse waves inside the parts of a joint

$(BE)_{i \text{ or } r}(t) \equiv$  sound transmittance of longitudinal waves or transverse waves at the sound coupling out area on the second part of a joint

with  $(BI)_{i \text{ or } r}^2(t)$  and  $(EB)_{i \text{ or } r}^2(t)$  of the longitudinal waves and the transverse waves being largely the same provided that frequencies are low and the transmission paths are short. These features are not disclosed or suggested by the Waschkie or Gunkel patents either alone or in combination.


The Examiner agreed to take the Applicant's arguments into consideration prior to issuing the next Office Action.

Respectfully submitted,

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